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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/634,970	08/05/2003	J. Milton Harris	SHE0010.13	6943

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EXAMINER	
NAFF, DAVID M	

ART UNIT	PAPER NUMBER
1657	

DATE MAILED: 11/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/634,970	HARRIS ET AL.	
	Examiner	Art Unit	
	David M. Naff	1657	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 August 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *68-99* is/are pending in the application.

4a) Of the above claim(s) *68-77 and 95* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *78-94 and 96-99* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/15/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims in the application are 68-99.

An amendment of 8/22/06 amended claims 78, 80-85, 87-89, 92-94 and 96, and added new claims 97-99.

Claims 68-77 and 95 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 12/7/06.

Claims examined on the merits are 78-94 and 96-99.

The Kitaguchi et al document has been considered. The document has been listed on form PTO-892 since form PTO-1449 was not included listing the document.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

Claims 78-94 and 96-99 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martinez et al (5,643,575) in view of Yoakum (4,650,909), and if necessary in further view of Sartore et al (listed on 1449), Veronese et al (pp 127-137) (listed on 1449) or Abuchowski et al (listed on 1449).

The claims are drawn to method for preparing a purified polymer by providing an impure polymer composition comprising a branched water-soluble PEG polymer having a site suitable for interacting with ion exchange chromatography media, and one or more polymeric

impurities selected from the group consisting of PEG diol, end capped PEG-OH and activated end-capped, and purifying the impure polymer composition by ion exchange chromatography to provide the PEG polymer in substantially pure form.

Martinez et al disclose branched polymers that provide extended *in vivo* circulating life of biologically active materials (col 1, lines 6-9). The polymer can be lysine disubstituted with MPEG (last formula of claim 39) that has the same structure as the polymer presently claimed. The MPEG disubstituted lysine is purified by conventional methods (col 7, lines 12-15), and after conjugating to a biologically active nucleophile such as a blood factor (col 7, line 37) is purified such as by diafiltration or column chromatography (col 9, lines 27-30).

Yoakum discloses removing toxic aldehydes and ketones (col 2, lines 53-59) from polyethylene (PEG) using ion exchange resins (paragraph bridging cols 3 and 4) so the PEG can be used for transfection of human cells.

Sartore et al disclose modifying arginase with monomethoxy polyethylene glycol (MPEG), and purifying the modified arginase from excess reagents and by-products of the reaction using column chromatography (page 48, last three lines of the paragraph under "Arginase Modifications").

Veronese et al disclose enzyme modification with MPEG. Unreacted MPEG-OH is removed from the modified enzyme by gel filtration in the

final step of purification (page 129, last sentence of the 4th complete paragraph).

Abuchowski et al disclose attachment of PEG to asparaginases. Unbound SS-PEG is removed by dialysis using an Amicon DC-2 hollow fiber device equipped with an H1P100 cartridge (paragraph bridging pages 176 and 177).

It would have been obvious to use ion exchange chromatography to purify the MPEG disubstituted lysine of Martinez et al as suggested by Yoakum using ion exchange resins to purify PEG since Martinez et al suggest using conventional purifying methods. Preparing the MPEG disubstituted lysine of Martinez et al would have inherently resulted in a polymeric impurity as required by the present claims. The COOH group of the MPEG disubstituted lysine of Martinez et al (claim 39) is capable of interacting with an ion exchange resin. The disclosure of purifying a PEG-modified enzyme by Sartore et al, Veronese et al or Abuchowski et al, if needed, would have further suggested conditions for purifying the MPEG disubstituted lysine of Martinez et al.

Response to Arguments

Applicant's arguments filed 8/28/06 have been fully considered but they are not persuasive.

It is recognized as urged by the amendment that the polymer of Martinez et al may not be pure when prepared by crystallization. However, it would have been obvious from the secondary references how to make the polymer substantially pure using conventional purification methods.

The amendment has cited Seely 5,935,564 as disclosing problems in removing PEG impurities, and as knowing of no preparative chromatographic procedures for successfully separating PEGs. However, the present claims recite obtaining the polymer in "substantially pure form" and such purity that permits a considerable amount of impurities would have been expected to be capable of being obtained by conventional chromatographic methods. Reciting in the specification "Relatively pure polymer molecules of high molecular weight can be created" (page 11, lines 23-24) indicates that purity of the polymer is relative and can vary depending on purity compared with.

The exhibits that are copies from Serial No. 10/119,546 are unpersuasive since they show obtaining a polymer that is more pure than substantially pure, and removing a mono-substituted PEG intermediate rather than any of the impurities as claimed.

The arguments concerning each of Yoakum, Sartore et al, Veronese et al and Abuchowski et al are noted. However, the references are applied together, and must be considered together as a whole rather than each alone. When the polymer of Martinez et al contains a group that interacts with an ion exchange chromatography media, it would have been expected that the polymer of Martinez et al can be obtained in substantially pure form. The motivation to use ion exchange chromatography is to obtain its high selectivity that would have been expected from the disclosure of Yoakum.

Claim 78 would be free of the prior art if amended to require the limitation of claim 94 and in the last line change "substantially" to

--- essentially ---. Claims properly dependent on this claim will also be free of the prior art.

Double Patenting

Claims 78-94 and 96-99 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 96-109, 111, 112 and 114-133 of copending Application No. 10/119,546. Although the conflicting claims are not identical, they are not patentably distinct from each other because the presently claimed method of purifying a PEG polymer would have been obvious from the method of purifying a PEG polymer of claims of the co-pending application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

This rejection has not been traversed other than request it be held in abeyance.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

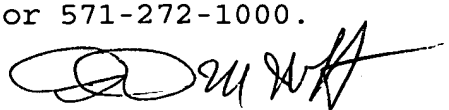
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action

is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David M. Naff whose telephone number is 571-272-0920. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jon Weber can be reached on 571-272-0925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



David M. Naff
Primary Examiner

Art Unit 1657

DMN
11/27/06